

CLAIMS

- 1.- (currently amended) Operating method for a convertible aircraft (1), equipped with a fuselage (2), standard fixed wings (3) with ailerons, a tail unit (4) with rudders (20), propulsion engines (5), a rotor (6) with blades (7, 8) located on the fuselage, a transmission between the engines and the rotor equipped with a brake and a clutch, and a landing gear (9), the method comprises a direct and reverse transitions from a helicopter mode to an autogyro mode and a direct and reverse transition from an autogyro-helicopter mode to an aeroplane mode, the direct transition from the helicopter mode to the autogyro mode consisting of comprising the following step:
- declutching the rotor from the rotor's propulsion engines, engines;
- ~~and the direct transition from the autogyro-helicopter mode to the aeroplane mode comprising the following stages steps:~~
- adjusting the collective and cyclic pitches of the blades (7, 8) of the rotor (6)
- 15 to essentially zero degrees, in such a way that they cease to lift and control the aircraft (1) and the latter is lifted by the standard fixed wings and controlled by the ailerons and the rudders (20);
- quickly reducing the rotational velocity of the rotor (6) using a brake (24) thereof;
- 20 characterized in that the method also comprises
- stopping the rotor in a transverse position of at least two of its blades (7, 8) in a position essentially transverse to the direction of flight;
- retracting the rotor blades towards the a stem of the aircraft, ~~independently from one another~~ until their longitudinal axis are ~~aligned with the same direction as~~
- 25 ~~that of the aircraft's movement~~ parallel to the fuselage (2) of the aircraft;
- rotating the blade which had a reverse air flow when the blades were stopped transversely to the direction of the flight to approximately 180° on its pitch axis;
- deploying the rotating blades, independently from one another, to an
- 30 azimuthal position determined by a pre-determined range of angles; and
- adjusting the angle of attack of the deployed blades until the blades are deployed in a position parallel to the ~~fixed wings;~~ wings; and
- the reverse of each of these transitions ~~from comprising the steps above executed~~ accomplished by executing each of the above steps in reverse sequence.
- 35 ~~and with the opposite actions.~~

2 - 5 (cancelled)

6 - (currently amended) Method, according to claim 1, characterised in that said step of adjusting the angle of attack of the deployed rotating blades (7, 8), ~~in such a way that they are placed on the aircraft's standard fixed wings (3), comprises~~
5 arranging the blades in each blade is parallel to one of the fixed wings thus transitioning into the form of the side view of a biplane.

7.- (currently amended) Convertible aircraft (1), of the type that comprises a fuselage (2), fixed wings (3) with ailerons, a tail unit (4) with rudders (20), propulsion
10 engines (5), a rotor (6) with blades (7, 8) located on the fuselage, landing gear comprising and transition

a means to transition from helicopter mode to autogyro mode; ~~and vice versa, characterised in that the rotor is equipped with driving~~

a means for the direct ~~and reverse transition (17, 18)~~ from autogyro-
15 helicopter mode to aeroplane mode; ~~which comprise:~~

a second servo-engine (18) for the regulation of the collective and cyclic pitches of the blades (7, 8) of the rotor (6) to essentially zero degrees, in such a way that they cease to lift and control the aircraft (1) and the latter is lifted and controlled by the ailerons and the rudders (20);

20 a means to stop the rotors ~~(24) in a transverse position of the blades (7, 8) in a position essentially transverse to the direction of flight;~~

a first servo-engine (17) to retract and deploy the rotor blades both towards and away from the stern of the aircraft, ~~which allows to retract the blades, independently from one another, until their longitudinal axis is to position the blades~~
25 essentially perpendicular to the fixed wings and when needed is parallel to the fixed wings, ~~aligned with the same direction opposite that of the aircraft's movement, and to deploy them the blades~~ to an azimuthal position determined by a pre-determined range of angles; and to rotate at least one of the rotor blades to approximately 180° on its pitch axis.

30

8 - 14 (cancelled)

15.- (Previously presented) Convertible aircraft (1), according to claim 7, characterised in that the blades (7, 8) of the rotor (6) are designed in such a way
35 that the chord at the root is greater than the chord at the tips.

16 - (Previously presented) Convertible aircraft (1), according to claim 7, characterised in that said propulsion engines (5) are engines with propellers (11).

5 17.- (currently amended) Convertible aircraft (1), according to claim 7, characterised in that the propellers (11) are placed ~~on the stem with respect to the standard~~ astern of the fixed wings (3).

10 18.- (Previously presented) Convertible aircraft (1), according to claim 7, characterised in that said propellers (11) have a variable pitch.

19.- (Previously presented) Convertible aircraft (1), according to claim 7, characterised in that said propulsion engines (5) are piston, gas turbine or jet engines.

15 20.- (new) Convertible aircraft according to Claim 7 further comprising:
a means to transition from autogyro mode to helicopter mode; and
a means to transition from aeroplane mode to autogyro-helicopter mode.